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Regional GHS Implementation Strategy for ASEAN

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Abstract:
At the United Nations Conference on Environment and Development (UNCED) held on 3 – 14 June 1992 in Rio de Janeiro, Brazil, the establishment of a globally harmonized hazard classification and compatible labelling system was adopted as programme area B listed in Chapter 19 of Agenda 21. After UNCED, with the culmination of more than a decade of work by multidisciplinary experts, a Globally Harmonized System of Classification and Labelling of Chemicals (GHS) was adopted by the United Nations Economic and Social Council's Subcommittee of Experts on the GHS (UNSCEGHS) in 2002 and endorsed by United Nations Economic and Social Council (ECOSOC) in July 2003. In the two-year project (2005-2007) to strengthen capacities in ASEAN countries for implementing the GHS, executed by United Nations Institute for Training and Research (UNITAR) in the context of UNITAR/ILO Global GHS Capacity Building Programme with financial support from the European Union and the Government of Switzerland, a study was conducted to assess GHS capacity at the ASEAN regional level. Based on the findings from that study, a regional GHS implementation strategy has been developed to fill in existing gaps for GHS implementation in ASEAN. Two strategies are proposed, namely a sectoral strategy that focuses on four thematic sectors - industrial workplace, agriculture, transport and consumer products respectively; and a cross-sectoral strategy for GHS implementation in ASEAN.

Keywords*: GHS, ASEAN, chemical classification and labelling, implementation*

Introduction

It is essential for the safe use of chemicals and classified them according to their hazards. Different degrees of hazard must be identified based on specific cut-off values. After chemicals have been classified, they should be labeled based on their hazardous properties and this hazard information must be sufficiently conveyed or communicated to the chemical transporters, storekeepers, distributors, users and/or target audiences, including regulating authorities. Many countries already have their own systems and requirements for classifying chemicals. However, although these requirements may be similar among certain countries, they are usually not the same due to different cut-off values or endpoints [1]. Therefore, a Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is needed to harmonize chemical classification and labelling systems around the world to ensure that safe working practices are uniformly adopted in all countries.

A globally harmonized hazard classification and compatible labelling system was introduced in Programme Area B in Chapter 19, Agenda 21 during the United Nations Conference of Environment and Development (UNCED), in Rio de Janeiro, Brazil in 1992. With the culmination of more than a decade of work by multidisciplinary experts, a Globally Harmonized System of Classification and Labelling of Chemicals (GHS) was adopted in 2002 by the United Nations Economic and Social Council's Subcommittee of Experts on the GHS (UNSCEGHS) and endorsed by United Nations Economic and Social Council (ECOSOC) in July 2003. The GHS has the ultimate goal of providing a comprehensive and universal tool for chemical classification and hazard communication, to be made available to workers, consumers and the public.

Many countries are now implementing the GHS, and GHS-related activities are being carried out at the national level through the national GHS implementation strategy. In order to strengthen the efforts for GHS implementation worldwide, in addition to any on-going national GHS implementation, a regional GHS implementation strategy should also be developed that could benefit member countries in a particular region. The objectives for a regional GHS implementation strategy include, *inter alia*: (i) to establish a regional platform to discuss and deliberate issues pertaining to GHS implementation; (ii) to obtain consensus among member countries in addressing technical barriers such as building block approach (BBA) and confidential business information (CBI); (iii) to share GHS expertise within the region, particularly the availability of GHS resource persons; (iv) to establish accredited laboratories within the

region that are capable of conducting chemical testing (i.e. physicochemical, health and environmental hazards) for single substances and mixtures; and (v) to identify and mobilize funding for GHS implementation in the region.

This paper presents the Association of Southeast Asian Nations (ASEAN) region as a case study. The existing infrastructures and capacities in ASEAN are identified and an appropriate regional GHS implementation strategy for ASEAN is proposed.

Overview of ASEAN

The Association of Southeast Asian Nations (ASEAN) was established on 8th August 1967 in Bangkok by five original member countries, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand. Brunei Darussalam joined on 8th January 1984, followed by Vietnam on 28th July 1995, Lao PDR and Myanmar on 23rd July 1997, and Cambodia on 30th April 1999. The aims and purposes of ASEAN as stated in the ASEAN Declaration are: (1) to accelerate economic growth, social progress and cultural development in the region and (2) to promote regional peace and stability through abiding respect for justice and the rule of law in the relationship among countries in the region and adherence to the principles of the United Nations Charter.

At the Ninth ASEAN Summit in Bali, 7-8 October 2003, as stipulated in Declaration of ASEAN Concord II, ASEAN leaders resolved that an ASEAN Community shall be established comprising three pillars, namely, the ASEAN Security Community (ASC), the ASEAN Economic Community (AEC) and the ASEAN Socio-Cultural Community (ASCC) [2]. The ASC has been renamed the ASEAN Political-Security Community (APSC), as stipulated in the ASEAN Charter [3]. Table 1 illustrates sectoral ministerial bodies in each ASEAN community. These three pillars establish a framework to achieve a dynamic, cohesive, resilient and integrated ASEAN Community.

Key institutions and structures in ASEAN

In order to assist GHS implementation at regional level, the structure of ASEAN has to be understood. In the ASEAN organizational structure, the ASEAN Summit is the highest decision-making organ in ASEAN. The ASEAN Summit is an annual meeting where Heads of State and Government from ASEAN make decisions based on consensus and consultation. The Summit is preceded by a Joint Ministerial Meeting (JMM) attended by Foreign and Economic Ministers. All the ASEAN meetings and discussions are facilitated by the ASEAN Secretariat, which comprises four different departments, namely the APSC Department, AEC Department, ASCC Department, and Communities and Corporate Affairs Department [4].

Another important network within ASEAN is the Association of Southeast Asian Nations-Occupational Safety and Health Network (ASEAN-OSHNET). The ASEAN-OSHNET is a regional network that collects and disseminates information within ASEAN and manages research and training for the improvement of working conditions and the environment. The ASEAN-OSHNET was established based on the Memorandum of Understanding (MOU) that was signed by members of ASEAN countries in August 2000 and the objectives stated in the MOU are: (i) to promote cooperation and solidarity among the National Occupational Safety and Health centres of the ASEAN countries; (ii) to enhance the capacity of National Occupational Safety and Health Centres in Occupational Safety and Health (OSH) promotion, training and research; (iii) to facilitate and promote the exchange of the relevant OSH information and the sharing of training expertise; and (iv) to facilitate and promote the development and harmonization of the ASEAN-OSHNET standards and guidelines [5].

There are five cooperation programmes under the ASEAN-OSHNET and each programme is managed by one programme coordinator. These five cooperation programme areas are [6]:

- Information (Programme Coordinator: Thailand)
- Training (Programme Coordinator: Philippines)
- Research (Programme Coordinator: Indonesia)
- Standards (Programme Coordinator: Malaysia)
- Inspection (Programme Coordinator: Singapore)

Activities and Decision Making Process

Prior to a meeting of the ASEAN Ministerial Bodies, issues and agendas must be agreed upon by the committees of senior officials and technical working groups (or subcommittees). Whenever a specific issue needs attention from ASEAN, this issue will be discussed at the relevant ASEAN technical working group first before it can be highlighted in the committees of senior officials. For example, issues related to Multilateral Environmental Agreements (MEA) at the ASEAN level are firstly discussed and agreed upon by the ASEAN Working Group on Multilateral Environmental Agreements (AWGMEA) and the outcome from AWGMEA is further refined by the committee of senior officials - ASEAN Senior Officials on the Environment (ASOEN).

Table 1 Sectoral ministerial bodies in each ASEAN community

No.	ASEAN Ministerial Bodies	Acronym
	ASEAN Political-Security Community (APSC)	
1.	ASEAN Foreign Ministers Meeting	AMM
2.	Commission on the Southeast Asia Nuclear Weapon Free Zone	SEANWFZ Commission
3.	ASEAN Defence Ministers Meeting	ADMM
4.	ASEAN Law Ministers Meeting	ALAWMM
5.	ASEAN Ministerial Meeting on Transnational Crime	AMMTC
6.	ASEAN Regional Forum	ARF
	ASEAN Economic Community (AEC)	
1.	ASEAN Economic Ministers Meeting	AEM
2.	ASEAN Free Trade Area Council	AFTA Council
3.	ASEAN Investment Area Council	AIA Council
4.	ASEAN Finance Ministers Meeting	AFMM
5.	ASEAN Ministers Meeting on Agriculture and Forestry	AMAF
6.	ASEAN Ministers on Energy Meeting	AMEM
7.	ASEAN Ministerial Meeting on Minerals	AMMin
8.	ASEAN Ministerial Meeting on Science and Technology	AMMST
9.	ASEAN Telecommunications and Information Technology Ministers Meeting	TELMIN
10.	ASEAN Transport Ministers Meeting	ATM
11.	Meeting of the ASEAN Tourism Ministers	M-ATM
12.	ASEAN Mekong Basin Development Cooperation	AMBDC
13.	ASEAN Centre for Energy	-
14.	ASEAN-Japan Centre in Tokyo	-
	ASEAN Socio-Cultural Community (ASCC)	
1.	ASEAN Ministers Responsible for Information	AMRI
2.	ASEAN Ministers Responsible for Culture and Arts	AMCA
3.	ASEAN Education Ministers Meeting	ASED
4.	ASEAN Ministerial Meeting on Disaster Management	AMMDM
5.	ASEAN Ministerial Meeting on the Environment	AMME
6.	Conference of the Parties to the ASEAN Agreement on Transboundary Haze Pollution	-
7.	ASEAN Health Ministers Meeting	AHMM
8.	ASEAN Labour Ministers Meeting	ALMM
9.	ASEAN Ministers Meeting on Rural Development and Poverty Eradication	AMRDPE
10.	ASEAN Ministerial Meeting for Social Welfare and Development	AMMSWD
11.	ASEAN Ministerial Meeting on Youth	AMMY
12.	ASEAN Conference on Civil Service Matters	ACCSM
13.	ASEAN Centre for Biodiversity	ACB
14.	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management	AHA Centre
15.	ASEAN Earthquakes Information Centre	-
16.	ASEAN Specialized Meteorological Centre	ASMC
17.	ASEAN University Network	AUN

Source: [3]

If the ASOEN decides that the issue is to be discussed and decided at the ministerial level, then it will be brought up at the ASEAN Ministerial Meeting on Environment (AMME). Nevertheless, if the issue discussed is out of the jurisdiction of the ASEAN Ministerial Bodies and needs to be approved by Heads of State and Government, then this issue will be endorsed during the ASEAN Summit based on consensus and consultation. This decision-making

mechanism is summarised in Fig. 1. However, according to the literature review, most of the decisions on an *ad hoc* issue seem to be made at the level of the respective ministerial meetings.

Similarly, the decision-making mechanism in ASEAN-OSHNET is similar to the decision-making mechanism in ASEAN. For example, issues of classification, labelling and packaging of chemicals (CLP) were first discussed within the respective programme area before it was brought up to the ASEAN Senior Labour Officials Meeting (SLOM) and later to the ASEAN Labour Ministers Meeting (ALMM). Figure 2 illustrates the decision-making mechanism in ASEAN-OSHNET.

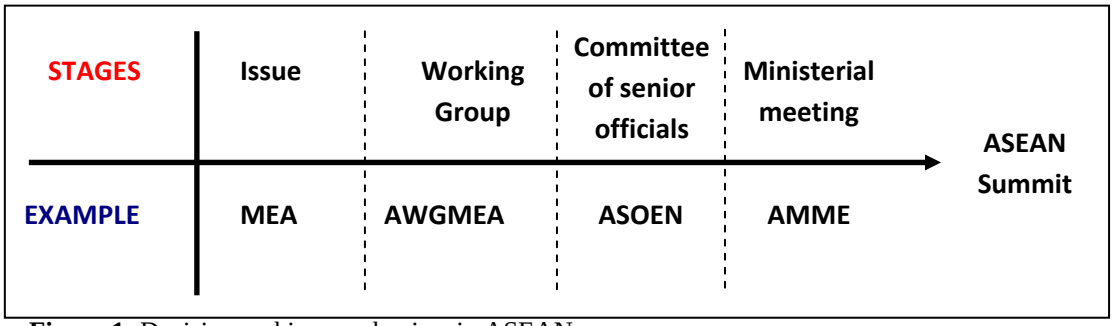

Figure 1: Decision making mechanism in ASEAN

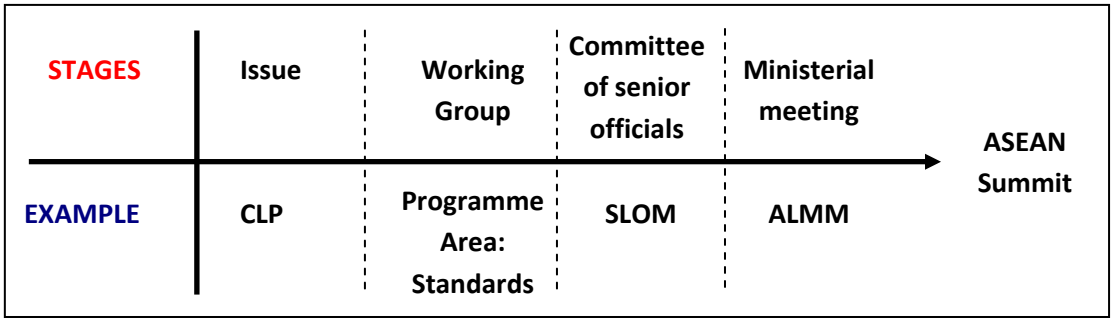

Figure 2: Decision making mechanism in ASEAN-OSHNET

Sectorial Infrastructure

Industrial workplace. In most countries, including members of ASEAN countries, chemicals have been one of the key factors that have contributed to accelerating a country's economy. Many types of chemicals have been produced and used in order to fulfil the need for chemicals or chemical-related products worldwide. However, while many benefits may be gained from chemicals, they also have the potential to pose hazards and cause adverse effects to human health and the environment. Thus, one of the objectives of implementing the GHS in the industrial workplace is to ensure that workers and employers have the capacity and capability to identify the risks associated with handling different chemicals, through the use of comprehensive hazard communication and safety data sheets (SDS) for specific chemicals. In addition, workers and employers need to be trained in appropriate precautionary behaviour while handling chemicals.

One of the main thrust of ASEAN Vision 2020 is to enhance human resource development in all sectors of the economy through quality education, upgrading of skills and capabilities and training. In order to realise the ASEAN Vision 2020, the Hanoi Plan of Action (HPA) with a six-year time-frame covering the period of 1999-2004 was endorsed by ASEAN Heads of State and Government during the 6th ASEAN Summit in 1998 in Hanoi, Vietnam. Within the context of HPA, efforts to establish and strengthen networks in education and training, particularly those promoting OSH, have been emphasized in the thrust of promoting human resource development.

At the closing stage of HPA in 2004, a successor programme – the Vientiane Action Programme (VAP), endorsed by ASEAN Heads of State and Government during the 10th ASEAN Summit in 2004 in Vientiane, Lao PDR, and to be implemented during the period 2004-2010, was established. The VAP is a tool to amalgamate and cross-link the strategies and goals of the three pillars of the ASEAN Community. One of the four ASCC strategic thrusts in VAP is managing the social impact of economic integration. This strategy can be implemented by developing and enhancing human resources in the workforce, strengthening systems of social protection and social risk management, and addressing health development issues arising from liberalization.

Under the cooperation programme area on Standards in ASEAN-OSHNET, to the extent that GHS is concerned, the Department of Occupational Safety and Health (DOSH), Malaysia has completed the first draft of 'ASEAN Guidelines on Chemical Classification, Labelling & Safety Data Sheet'. These guidelines have incorporated and complied with the principles of GHS. The draft guidelines were then discussed and deliberated at the ASEAN-OSHNET Workshop on 6-8 March 2006, Grand Seasons Hotel, Kuala Lumpur, Malaysia. Using the inputs and recommendations from the participants during the workshop, ASEAN member countries are now reviewing the draft guidelines.

Agriculture. In order to enhance the productivity of agricultural products, agrochemicals (e.g. pesticides and fertilizers) have been widely used by farmers and farm workers. However, while agrochemicals provide enhancement in terms of quantity and quality of agricultural products, the use of agrochemicals may pose hazards to those who are using them as well as to the environment.

As far as ASEAN is concerned, agricultural products play an important role in expediting the economies across the region. In 2002, approximately 48.1 percent of the total ASEAN population were involved in agriculture [7]. Cooperation in the agriculture sector among members of ASEAN countries is crucial. During the ASEAN Ministers on Agriculture and Forestry (AMAF) meeting in 1984, members of ASEAN agreed to promote the development of agriculture cooperatives in the ASEAN region through: (i) exchange of relevant information and experience among member countries; (ii) education and training of personnel and co-operators; (iii) research and development programmes; and (iv) other project activities related to agriculture cooperatives [8].

In the 20th AMAF meeting in Hanoi, 1998, a Strategic Plan of Action (1999-2004) on ASEAN Cooperation in Food, Agriculture and Forestry was adopted. There are six strategic thrusts under this Strategic Plan of Action, namely : (i) strengthening of food safety arrangement in the region; (ii) enhancement of international competitiveness of ASEAN food and agriculture products/commodities; (iii) enhancement of ASEAN cooperation and joint approaches on international and regional issues; (iv) development and acceleration of transfer and adoption of new technologies; (v) enhancement of private sector involvement; and (vi) management, sustainable utilization and conservation of natural resources. A review study carried out by the ASEAN-Australia Development Cooperation Programme concluded that the Strategic Plan of Action (1999-2004) had made considerable progress in accordance to the stated objectives. The review study found that the strategic thrusts in the Action Plan were still consistent and appropriate to the trends and issues for cooperation in the next six years and therefore, a new Strategic Plan of Action (2005-2010) was formulated based on the strategic thrusts from the previous Plan of Action.

Under the Strategic Plan of Action (2005-2010), agriculture cooperatives within the ASEAN region have been enhanced, particularly on the proper use and management of pesticides. For example, AMAF has harmonized the maximum residue limits (MRLs) of pesticides for various fruits, vegetables and crops that are widely traded among ASEAN members. The ASEAN Pesticides Regulatory Authorities Official Site was also established and is coordinated by Malaysia. It serves as a platform for information sharing, discussion, identification, prioritization, implementation and resolution of problems related to pesticide management. Labels for registered pesticides that are accepted by members of ASEAN are available on the website; however, access to the information is restricted. With the existence of standard pesticide labelling, farmers and farm workers across the region can have a better understanding of the active ingredients and risks posed by the pesticides that they are using.

Integrated Pest Management (IPM) is promoted in the Strategic Plan of Action (2005-2010). The aims of IPM are to improve agricultural productivity and cost effectiveness, and to ensure environmental sustainability. Through IPM, farmers can share experiences and information on pest controls, such as natural enemy monitoring methods, biological control, physical control and chemical control. As far as conventional pest control methods are concerned, most of the farmers use pesticides. Through sharing and exchange of experience and information among the farmers on IPM, they have the opportunity to view other alternatives for pest control instead of using pesticides. However, in the event that these alternatives are not available, with adequate information from IPM, farmers can choose a more 'friendly' pesticide which will pose fewer hazards to human health and environment compared to the pesticides that are currently being used. IPM also emphasizes the health of farmers and farm workers and has proposed extension activities to assist them to learn about pesticide labelling and pesticide selection.

Transport. Transportation of dangerous goods, such as chemicals and products containing chemicals via road, rail, water and air might pose hazards not only to those directly involved in transport (e.g. drivers), workers who load and unload packages of dangerous goods into or from transport vehicles, and the communities on the transit route, but also to the environment, especially in the case of an accident. Safety in the transport of dangerous goods has been initiated and promoted by the UN Economic and Social Council's Sub-Committee of Experts on the Transport of Dangerous Goods (UNSCETDG), which published the first edition of the UN Recommendations on the Transport of Dangerous Goods (UNRTDG) in 1956. Currently the 15th edition is in print.

The ASEAN Transport Ministers have reaffirmed that an efficient and integrated transport system is key for ASEAN to integrate with the global economy, improve competitiveness and enhance the inflow of foreign direct investment. On 16th December, 1998 in Hanoi, Vietnam, the ASEAN Framework Agreement on the Facilitation of Goods in Transit was endorsed by members of ASEAN countries [9]. The objectives of this agreement are: (i) to facilitate transportation of goods in transit, to support the implementation of the ASEAN Free Trade Area, and to further integrate the region's economies; (ii) to simplify and harmonize transport, trade and customs regulations and requirements for the purpose of facilitation of goods in transit; and (iii) to establish an effective, efficient, integrated and harmonized transit transport system in ASEAN (note: 'Transit transport' means transit of goods and means of transport across the territory of one or more Contracting Parties (members of ASEAN countries), when the passage across such territory or territories, with or without transhipment, warehousing, breaking bulk or change in the mode of transport, is only a portion of a complete journey beginning and terminating beyond the frontier of one or more Contracting Parties across whose territory the traffic passes (as stipulated in ASEAN Framework Agreement on the Facilitation of Goods in Transit 1998)) . In Article 25 of this agreement, nine protocols are identified within the context of this agreement, stating that working groups shall be established or designated in order to conclude the protocols which shall form integral parts of this agreement. Protocol 9 is where dangerous goods are defined as substances and articles which may affect the interests of environment, health, safety and national security. Where the transport of dangerous goods is concerned, as stipulated in Article 20, transit transport of dangerous goods that are specified in Protocol 9 shall not be permitted under this agreement, except when a special permit is available.

On 20th September 2002, by recalling the ASEAN Framework Agreement on the Facilitation of Goods in Transit (ASEAN 1998) and recognizing Article 20 and 25 in the agreement, Protocol 9 was signed by ASEAN Transport Ministers in Jakarta, Indonesia during the 8th ASEAN Transport Ministers Meeting (ATM) [10]. Protocol 9 provides for the simplification of procedures and requirements for the transit transport of dangerous goods in ASEAN, by using internationally accepted standards and guidelines, i.e. UNRTDG, European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) and Restructured ADR (note: Restructured ADR means the restructured version of the ADR, effective from 1 July 2001). These standards and guidelines shall be the existing versions as of the date of signature of this Protocol, or in other words, as Protocol 9 signed in 2002 refers to UNRTDG (revised version 2001), ADR (revised version 2001) and Restructured ADR (revised version 2001). ASEAN Senior Transport Officials Meeting is the body responsible for the monitoring, review, coordination and supervision of all aspects relating to the effective implementation of Protocol 9.

Consumer Products. Most consumer products have been developed and manufactured in order to enhance life styles and living conditions. However, some consumer products, such as paints, dyes and cleansing products may contain hazardous chemicals which expose consumers to risks on a daily basis. Therefore, there is a need to label consumer products as the label is likely to be the sole source of important information to consumers. There is also a need for information on the labels of consumer products to be comprehensive and to be conveyed using the simplest terms and in an intelligible manner.

There is as yet no explicit effort among members of ASEAN countries to regulate specific consumer products, particularly consumer products such as paints and detergents that contain hazardous chemicals.

Other Relevant Regional Bodies

AMEICC. The establishment of AEM-METI (ASEAN Economic Ministers–Ministry of Economy, Trade and Industry of Japan) Economic and Industry Cooperation Committee (AMEICC) in 1998 was endorsed by the ASEAN-Japan Summit Meeting held in Kuala Lumpur, Malaysia in 1997; and the first meeting of AMEICC was held in Bangkok, Thailand in November 1998. The objectives of AMEICC are: (i) to improve ASEAN competitiveness; (ii) to enhance industrial cooperation; and (iii) to develop cooperation with and to provide assistance to new member countries. There are eight working groups established under the provision of AMEICC, including the Working Group on Chemical Industry (WGCI). In order to facilitate the AMEICC and the working groups, the Japan Overseas Development Corporation (JODC), Bangkok and the ASEAN Secretariat were nominated as co-secretariats.

The WGCI was established in 1999 under the provision of AMEICC. The objectives of WGCI are: (i) to exchange information and opinions with regard to supply and demand trends of petrochemical products; (ii) to exchange views on safety policies and technical cooperation related to the environment and chemical products; and (iii) to develop capacity building for industry and environmental protection for chemical industries in ASEAN. The WGCI is composed of representatives from ASEAN countries and Japan, where in principle, two members from each country, one from the government and one from the industry, will attend the meetings.

The issue of the GHS was first discussed at the 7th WGCI in 2002, and it was initiated by representatives from the Chemical Industry Council of Malaysia (CICM). At the 11th WGCI meeting that was held in Jakarta, Indonesia (11-12th July 2006), the issue of GHS was widely discussed where ASEAN member countries presented their respective national strategies for chemical safety management in relation to GHS, the current status and future direction of legislation for chemical safety management, and the current status and future plans regarding GHS implementation, such as developing GHS experts, establishing training institutions and a database, and promotion of public awareness. The 11th WGCI meeting also noted that exchanging information and sharing experiences could contribute to the improvement of chemical safety management in ASEAN and its harmonization. In addition, Japan explained that national strategies and a regulatory framework for chemical management in ASEAN member countries are being developed and the GHS might be useful as a common tool for chemical management in ASEAN.

Since 2003, Japan has initiated the 'GHS Expert Dispatch Programme', particularly for ASEAN member countries. With the assistance from JETRO (Japan External Trade Organization) and AOTS (Association for Overseas Technical Scholarship), four different types of training courses have been established in order to enhance capacity of GHS among the ASEAN member countries. These training courses are: GHS primary course (1 day), GHS intermediate course (2 days), GHS advanced course (5 days) and finally GHS instructor training course (2 weeks). (Participants at the GHS instructor course are required to have successfully completed the GHS advanced course). The timeframe for ASEAN member countries to participate in these training courses are shown in Table 2. There are also other initiatives for the GHS capacity building for ASEAN member countries, such as training courses for chemical management policy provided by the Japanese International Cooperation Agency (JICA) that have already incorporated issues of GHS within the scope of training.

Table 2. Timeframe for ASEAN member countries to participate in the training courses provided by Japan

ASEAN Member Countries	Type of training courses	Time-frame
Indonesia, Malaysia, Thailand, Philippines and Vietnam	GHS primary, intermediate, and advanced course	2003-2005
	GHS instructor training course	2006-2007
Cambodia, Lao PDR and Myanmar	GHS primary, intermediate, and advanced course	2005-2007
	GHS instructor training course	2007-2008

(note: Training course is not provided for Singapore and Brunei due to the status of their economies)
Source: [11]

ACIC. The ASEAN Chemical Industries Council (ACIC) is a regional grouping in ASEAN, established with the view to advancing a faster and more effective implementation of projects for industrial complementation under the Working Group of Industrial Complementation of the ASEAN Chamber of Commerce and Industry (ASEAN-CCI). It was formed in April 1977 and has a current membership of six countries, comprising the respective national chemical industry associations/organisations from Indonesia, Malaysia, Myanmar, Philippines, Singapore and Thailand. The affairs of the ACIC are governed and administered by the ACIC Board of Directors which meets annually to promote cooperation, as well as to discuss and resolve issues affecting the ASEAN chemical industry.

During the Seminar on GHS Implementation and Technical Assistance that was held by Asia-Pacific Economic Cooperation (APEC) on 20-22 September 2006, in Bangkok, Thailand, representatives from ACIC discussed possible strategies on how ACIC could play a more important role in the region and also contribute to the region in terms of GHS implementation. The proposed strategies include: (i) inviting non-ACIC members to regional GHS training events; (ii) nominating a company representative for GHS in countries where no ACIC representative exists; (iii) executing training and awareness raising workshops for industry throughout the region; and (iv) providing updates on GHS implementation in ACIC publications and newsletters.

CropLife International. CropLife International addresses international developments in the area of crop protection (pesticides)**,** agriculture biotechnology and sustainable agriculture. As a global federation, CropLife International consists of members from different regions, such as CropLife America, CropLife Latin America, the European Crop Protection Association, CropLife Asia, the Japan Crop Protection Association and CropLife Africa and Middle East.

During the Seminar on GHS Implementation and Technical Assistance that was held by the Asia-Pacific Economic Cooperation (APEC) on 20-22 September 2006, in Bangkok, Thailand, representatives from CropLife Asia presented a paper on CropLife Asia's perspectives and recommendations on GHS. The recommendations are: (i) to implement only those aspects of GHS which are appropriate to agricultural chemicals; (ii) to work with national

pesticide authorities to ensure consistent messages; (iii) to align with other guidelines such as FAO International Code of Conduct on the Distribution and Use of Pesticides; (iv) to use FAO specifications to determine similarity of products before extrapolating classification criteria from one product to another; (v) to consider using self-classification schemes; (vi) to ensure that classification is based on sound science and rigorous evaluation of data; (vii) to translate classification into clear label statements via specific guidelines; (viii) to use test data in preference to extrapolation from other sources; (ix) to respect intellectual property rights of data submitters; (x) to allow suitable time for implementation and smooth transition to minimize excessive costs; (xi) to work together to ensure consistency, so as not to impede trade; and (xii) to provide appropriate and timely communication and training for users and the public.

Analysis of Gaps in Capacity related to GHS at the Regional Level

The 'ASEAN Guidelines on Chemical Classification, Labelling & Safety Data Sheets' undertaken by ASEAN-OSHNET (under the cooperation programme area: standards) are deemed to provide the most relevant infrastructure complying with the GHS at the ASEAN level. However, training courses, workshops and seminars on these guidelines are uncertain. Workshops on GHS for ASEAN members, such as the one conducted in Kuala Lumpur, Malaysia on 6-8 March 2006, are seen as efforts on an *ad hoc* basis. As far as capacity building is concerned, the GHS workshops, seminars and training courses should be incorporated into the ASEAN-OSHNET annual calendar in order to institutionalize the capacity on GHS implementation. Once this has become realistic, the capacity for GHS among members of ASEAN, particularly industrial workers, could be strengthened on both short-term and long-term bases. However, the lack of funding is one of the main obstacles in institutionalizing these activities.

For the agriculture sector in ASEAN, although IPM has been promoted by members of ASEAN, the GHS elements are not incorporated in IPM. In general, the health of farmers and farm workers is one of the main concerns under the provision of IPM. As far as GHS is concerned, GHS will enhance the safety of farmers and farm workers through harmonized labels and precautionary statements on pesticides which are accepted internationally. Therefore, there is a need for IPM to incorporate GHS elements. There has been no explicit effort to establish pesticide labels that comply with GHS, although in the ASEAN pesticide network and database website it is anticipated that examples of pesticide labels that are accepted by members of ASEAN will be provided.

In the transport sector, Protocol 9 has been signed by members of ASEAN in order to facilitate transport of dangerous goods. Members of ASEAN endorsed the references used in Protocol 9 which consist of UNRTDG (revised version 2001), ADR (revised version 2001) and Restructured ADR (revised version 2001). As stipulated in Protocol 9, the applicability of future revisions or amendments to all the references stated in Protocol 9 shall take effect via the effective consent of all the ASEAN members. As the UNRTDG (revised version 2005) complies with the GHS, there is a need for ASEAN members to amend Protocol 9 in order to incorporate references that comply with GHS. However, to date, there has been no explicit effort on this matter. As for other consumer products such as paints and cleansing materials, there has been no explicit collaboration among ASEAN member countries.

In general, the major gap in GHS implementation is the lack of awareness among members of ASEAN about the existence of GHS. Therefore, various ministerial bodies, senior officials' meetings and working groups that comprise representatives (decision making levels) from all the ten countries in ASEAN should incorporate GHS as an agenda item to be discussed. With this, it is anticipated that representatives from the respective countries can convey the information on GHS to the public through a top-down approach with complementary bottom-up efforts via collaboration with the private sectors, academic researchers and NGOs.

Proposed GHS Implementation Strategy at ASEAN Regional level

As mentioned in the earlier section, although countries are now implementing the GHS, regional GHS implementation is also essential to strengthen regional collaboration and cooperation towards a sound chemicals management system. One of the successful examples of regional efforts in harmonizing chemical classification and labelling is the European Union (EU). The EU gazetted the European Council Directive 67/548/EEC on 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, to harmonize CPL system across the EU [12]. Later, on 16 December 2008, with the existence of the GHS and the EU REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) Regulation, the European Council Directive 67/548/EEC was replaced by the new EU Regulation incorporating GHS elements, namely the European Council Regulation No: 1272/2008 of the European Parliament and of the Council on classification, packaging and labelling of substances and mixtures [13]. This new EU regulation has been imposed on all the 27 EU member states.

As there is a need to synergize efforts for the GHS implementation in a region, the sectoral and cross-sectoral regional GHS implementation strategies for ASEAN are proposed in Table 3. In addition, a framework that illustrates the relations between national and regional initiatives related to the GHS implementation in ASEAN is also proposed in Table 4.

Table 3. Proposed Sectoral GHS Implementation Strategy for ASEAN

No.	Proposed Measures	Proposed Implementing Body	Remarks
(A1) GHS Implementation at ASEAN Regional Level: Industrial Workplace			
1	Disseminate the 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets' throughout the ASEAN member countries.	ASEAN-OSHNET	• One of the cooperation programmes under the ASEAN-OSHNET, i.e. Standards (Programme Coordinator: Malaysia), is currently finalizing the 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets'. It is anticipated that the guidelines will be disseminated to ASEAN member countries soon.
2	Ensure the 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets' are accepted by the relevant government bodies in all the ASEAN member countries.	Senior Labour Officials Meeting (SLOM) and ASEAN-OSHNET	• This document can serve as an important technical document in the region, particularly to government bodies such as the department of occupational safety and health. • It is anticipated that these guidelines will establish a mutually agreeable approach to the GHS implementation among ASEAN member countries and help reduce and eliminate impediments that can occur in the region.
3	Organize training courses based on the 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets'	ASEAN-OSHNET and ACIC	• The training courses can be established after the acceptance of the 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets' by the ASEAN member countries.
4	Strengthen the role of ASEAN Chemical Industries Council (ACIC) in the region in terms of GHS implementation	ACIC	• At the APEC Seminar on GHS Implementation and Technical Assistance on 20-22 September 2006, representatives from ACIC proposed the following strategies to strengthen the role of ACIC, particularly in GHS implementation: 1) Inviting non-ACIC members to regional GHS training events (currently, the members of ACIC comprise only six out of ten ASEAN member countries, i.e. Indonesia, Malaysia, Myanmar, Philippines, Singapore and Thailand). 2) Nominating a company representative for GHS in countries where no ACIC representative exists. 3) Conducting training and awareness- raising workshops for industry throughout the region 4) Providing updates on GHS implementation in ACIC publications and newsletters.
5	Identify mechanisms to take into account the needs of confidential business information (CBI) and GHS in the region	ACIC	• ACIC could collaborate with APEC to develop guidelines on how to take into account the needs of CBI and GHS in the region. • These guidelines should not compromise the safety of users. • CBI may vary from country to country.

6	Organize GHS training and awareness- raising workshops for industries, traders, labourers and government agencies	ASEAN-OSHNET and ACIC	• With adequate financial resources, and based on the development of 'ASEAN Guidelines on Chemical Classification, Labelling and Safety Data Sheets', ASEAN-OSHNET could collaborate with ACIC to organize regional GHS training and awareness- raising workshops. • The issue of funding could be raised at the ASEAN Ministerial level. • ASEAN-OSHNET should initiate the discussion with ACIC on the issues of collaboration, including the type and frequency for the training and awareness- raising workshops for industries and government agencies, and identification of financial resources that can be tapped. • Training materials could be developed and trainers could be trained and identified through the collaboration between ASEAN-OSHNET and ACIC.
7	Identify and nominate accredited institutions within the region to prepare SDS	Senior Economic Officials Meeting (SEOM) and ACIC	• Most of the industries in ASEAN often encounter difficulties in preparing the SDS for their products due to lack of facilities and capabilities. Thus, as far as SDS is concerned, most of the industries send their products to countries like Japan or Australia for the preparation of SDS. • It is possible for ASEAN member countries to identify and nominate accredited institutions within the region to develop SDS. This can reduce the cost of the products and also strengthen the capacity and capability of ASEAN in terms of GHS implementation. • The accredited institutions should be signatories to International Laboratory Accreditation Cooperation (ILAC) and Asia-Pacific Laboratory Accreditation Cooperation (APLAC) • National agencies can take on the role of data depository. • When a hazardous substance or product containing hazardous substances is developed, the SDS should be submitted to the appropriate depository in that country.
(A2) GHS Implementation at ASEAN Regional Level: Agriculture			
1	Incorporate GHS element into the Integrated Pest Management (IPM)	Senior Officials Meeting of the ASEAN Ministers on Agriculture and Forestry (SOM-AMAF)	• The IPM has been promoted under the Strategic Plan of Action (2005-2010) of the ASEAN Cooperation on Food, Agriculture and Forestry. However, the GHS elements have not yet been incorporated into the IPM. • Since the GHS labelling will affect the labelling on the pesticides, and those pesticides are intentionally being formulated to control the pests, the GHS elements should be incorporated into IPM. • The GHS labelling on pesticides should be in line with the updated technical guidance documents from international organizations such as FAO and WHO.
2	Agree on the labels (that are in line with GHS labelling) for registered pesticides that are accepted by the ASEAN member countries and then	SOM-AMAF and ASEAN Pesticides Regulatory Authorities Official Site	• The ASEAN Pesticides Regulatory Authorities Official Site serves as a platform for information sharing, discussion, identification, prioritization, implementation and resolution of problems related to pesticide management.

	have them uploaded into the ASEAN Pesticides Regulatory Authorities Official Site.		
3	Strengthen the role of local agencies and members of SEApChemNet[1] related to agriculture sector and CropLife Asia in GHS implementation in ASEAN	Local agencies and members of SEApChemNet related to agriculture sector and CropLife Asia	• In order to strengthen the role of SEApChemNet and CropLife Asia that are related to the agriculture sector, more associations at the national and regional levels should be encouraged to join SEApChemNet and/or CropLife Asia. • When assessing a crop protection product, the regulatory authority must respect the intellectual property right.
4	Organize GHS training and awareness raising workshops for farmers, farm workers and government inspectors.	SOM-AMAF, ASEAN Pesticides Regulatory Authorities Official Site and local agencies and members of SEApChemNet related to agriculture sector and CropLife Asia	• SOM-AMAF could initiate discussion with SEApChemNet and CropLife Asia regarding the issue of GHS training and awareness-raising workshops for farmers and farm workers in ASEAN. • Besides that, training materials and trainers could also be identified through the collaboration between related ASEAN sectoral working groups under SOM-AMAF, SEApChemNet and CropLife Asia.
5	Address issues related to confidential business information (CBI) and GHS in the region	CropLife Asia, Civil society, government and ASEAN Network for Pesticides Regulatory Authorities	• CropLife Asia could collaborate with APEC, civil society and government to develop guidelines on CBI and GHS in the region. • These guidelines should not compromise the safety of users.
(A3) GHS Implementation at ASEAN Regional Level: Transport			
1	Amend Protocol 9 that provides for the simplification of procedures and requirements of the transit transport of dangerous goods in ASEAN.	ASEAN Transport Ministers Meeting (ATM) / ASEAN Senior Transport Officials Meeting (STOM)	• Protocol 9 was signed by ASEAN Transport Minister on 20th September 2002 and it provides for the simplification of procedures and requirements of the transit transport of dangerous goods in ASEAN. • However, Protocol 9 was referred to the 12th Revised Version of UNRTDG (2001), ADR and Restructured ADR (2001). • As far as GHS is concerned, Protocol 9 should be amended by incorporating the latest version of the United Nations Recommendations on the Transport of Dangerous Goods (UNRTDG) (i.e. 15th Revised version, 2007) and the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) (i.e. ADR 2007) that are in line with GHS. • Protocol 9 should also incorporate International Maritime Dangerous Goods Code (of the International Maritime Organization), and the Technical Instructions for the Safe

[1] The Southeast Asia Public Interest and Labour Organisations (PILO) Chemicals Network (SEApChemNet) was established on 8 May 2007 in Jakarta, Indonesia.

			Transport of Dangerous Goods by Air (of the International Civil Aviation Organization) that are in line with GHS.
2	Organize GHS training and awareness raising workshops for transport workers	ASEAN Transport Ministers Meeting (ATM) / ASEAN Senior Transport Officials Meeting (STOM)	• Transport workers (road, air and water) should receive adequate training on the GHS across the region.
3	Provide training and awareness raising workshops for customs officers and other related agencies in the region	Coordinating Committee on Customs (CCC)	• Customs officers are involved in goods clearance, goods transit etc, thus their capacity in handling chemicals and dangerous goods should be enhanced. • Training and human resource development are part of the ASEAN Customs Vision 2020.
(A4) GHS Implementation at ASEAN Regional Level: Consumer Products			
1	Establish a committee/working group for consumer products in ASEAN	ASEAN Consultative Committee on Standards and Quality (ACCSQ), private sector and SEApChemNet	• Under the ACCSQ, there are various committee and working groups, such as wood-based products working group, rubber-based products working group etc. • Since the elements of GHS (e.g. pictograms) can be incorporated into the labels of consumer products such as paints, dyes, cleaning products etc, it is thus necessary to establish a committee/working group for consumer products in ASEAN. • Once the consumer products classification and labelling are standardized in the region, then directly or indirectly, the trade of consumer products within the region, as well as international trade, will be facilitated. • GHS regulations with other sectors should be coordinated.
2	Ensure that GHS is considered as a standard which can facilitate the implementation of Mutual Recognition Arrangements (MRAs)	ASEAN Consultative Committee on Standards and Quality (ACCSQ)	• As GHS can be considered internationally accepted standards, the adoption of GHS would accelerate the implementation of MRAs. • Consumer products should be prioritized. • Hazard-based and/or risk-based labelling for consumer products should be adopted. • This should be voluntary or mandatory according to national conditions.
3	Strengthen the role of Regional Consumer Organizations in managing GHS implementation in ASEAN	SEApChemNet and other relevant organisations	• In order to strengthen the role of SEApChemNet, more associations at the national and regional levels should be encouraged to join. • This would enhance capacity for SEApChemNet.
4	Establish training and awareness raising modules	SEApChemNet and other relevant organisations	• Regional Consumer Organizations, e.g. Consumer International Asia Pacific, could establish training and awareness raising modules and these modules can be disseminated to the member organizations in ASEAN.

Table 4. Proposed Cross-sectoral GHS Implementation Strategy for ASEAN

No	Proposed Measures	Proposed Implementing Body	Remarks
1	GHS can be made an agenda item to be discussed at the ASEAN senior officials meeting and if feasible, at the ASEAN Ministerial meetings.	Relevant ASEAN ministerial bodies, senior official meetings, and technical working groups	• GHS can be an item on the agenda to be discussed in various other ASEAN meetings too. This will speed up the familiarization of GHS among ASEAN members.
2	Establish the ASEAN Steering Committee on the GHS (ASCGHS)	Senior Economic Officials Meeting (SEOM) / ASEAN Economic Ministers Meeting (AEM)	• Before the establishment of the ASCGHS, each ASEAN member country should establish the National Coordinating Committee on the GHS Implementation (NCCGHS) in his/her own country. The chairperson of the NCCGHS (or the national focal point for GHS) from each member country should become a member of the ASCGHS. • The responsibilities of the ASCGHS would be to: 1) Update member countries on the GHS implementation status in their respective countries (pre-GHS and post-GHS). 2) Ensure the implementation of the ASEAN Regional GHS Implementation Strategy (adapt the GHS implementation strategy if necessary). 3) Identify obstacles in the GHS implementation and formulate strategies to reduce and eliminate those obstacles. 4) Obtain inputs from the ASEAN national and regional Group of Resource Persons on the GHS (GRPGHS) 5) Update GHS-related progress of other international institutions, such as Asia Pacific Economic Cooperation (APEC), UNSCEGHS, UNITAR and ILO etc. 6) Report on the GHS implementation status in ASEAN to the SEOM and/or AEM. 7) Harmonize the Building Block Approach (BBA) among ASEAN member countries. 8) Coordinate the contents of the GHS website (if the website is available in each of the ASEAN member countries) 9) Identify transition period for the GHS implementation. 10) Recognize ASEAN member countries which have implemented GHS earlier.
3	Establish Group of Resource Persons on the GHS (GRPGHS) in	AMEICC Secretariat	• Before establishing the GRPGHS at the ASEAN level, each ASEAN member country should establish its own GRPGHS. • As a starting point at the national level, those who have completed the GHS instructor training

	ASEAN		courses organized by JETRO/AOTS through the 'Japan GHS Expert Dispatch Programme' can become members of the GRPGHS. The GRPGHS can provide technical input to the NCCGHS. • Later, the members of the GRPGHS at the national level can meet twice a year at the regional level (since the UNSCEGHS meet twice a year, in July and December, thus ideally the GRPGHS should meet in September and March every year in order to incorporate the outcomes from the UNSCEGHS). • Terms of Reference (TOR) should be established upon formation of the group. • The responsibilities of the GRPGHS include: 1) Providing technical input to the ASCGHS; 2) Updating the ASCGHS on the latest outcomes of the UNSCEGHS; 3) Providing technical information on the harmonization of the BBA amongst ASEAN member countries across the four key sectors, i.e. industrial workplace, agriculture, transport and consumer products; 4) Conveying the outcomes of the Working Group on the Chemical Industry (WGCI) under the AMEICC to the ASCGHS.
4	Facilitate the GRPGHS meeting at the regional level	AMEICC Secretariat	• The AMEICC Secretariat will be responsible for: 1) Providing secretariat services to the GRPGHS at the regional level; 2) Identifying and compiling the name list and agencies of those (from ASEAN) who have completed the GHS instructor training courses organized by JETRO/AOTS through the 'Japan GHS Expert Dispatch Programme'.
5	Facilitate GHS implementation at the ASEAN regional level	ASEAN Secretariat (ASEAN Economic Community (AEC) Department)	• This Secretariat will provide secretariat services to GHS implementation at the ASEAN regional level.

Proposed GHS Implementation Framework for ASEAN

Each ASEAN member country should establish its own National Coordinating Committee on the GHS (NCCGHS) which will facilitate and coordinate national GHS implementation of the four key sectors. Each key sector should be led by its respective committee, i.e. the GHS Committee for the Industrial Workplace (GHSCIW), the GHS Committee for Agriculture (GHSCA), the GHS Committee for Transport (GHSCT), and the GHS Committee for Consumer Products (GHSCCP). Members of each committee should include representatives from government, industry and civil society. The NCCGHS should establish the national GHS implementation strategy and this could be assisted by the Group of Resource Persons on the GHS (GRPGHS). The members of GRPGHS are those personnel who have completed the GHS instructor training course under the 'Japan GHS Expert Dispatch Programme', or those who have undergone informal GHS training available in academia, for example, researchers from universities or research institutes who have carried out studies related to GHS.

At the ASEAN regional level, it is essential to establish an ASEAN Steering Committee on the GHS (ASCGHS) to facilitate GHS implementation at the regional level. The members of the ACCGHS would be representatives from the NCCGHS of member countries. Personnel in ASEAN who have been trained under the 'Japan GHS Expert Dispatch Programme' should become members of GRPGHS at national and regional level, as they would help identify GHS technical barriers such as CBI and BBA, and then provide technical assistance to the ASCGHS. The AMEICC secretariat should facilitate meetings for the regional and national GRPGHS.

The responsibilities of the ASCGHS are illustrated in Table 4 and the outcomes of the ASCGHS should be conveyed to the Senior Economic Officials Meeting (SEOM) and/or the ASEAN Economic Ministers Meeting (AEM). Figure 3 illustrates the proposed framework for GHS implementation in ASEAN.

Conclusion

Undoubtedly, national GHS implementation is important but the importance of GHS implementation at the regional level should not be overlooked. The national GHS implementation might differ across the ASEAN member countries due to differences in culture and social-economic background. As far as the BBA is concerned, ASEAN member countries may adopt different GHS elements for their respective countries. However, this might lead to a lack of harmonization of GHS within the ASEAN region. Thus, it is important to establish an ASEAN regional GHS implementation strategy where member countries could discuss and deliberate common technical barriers for the implementation of GHS. The advantages of having the ASEAN regional GHS implementation strategy include the facilitation of chemical trade within the region, as well as the enhanced protection of human health and the environment.

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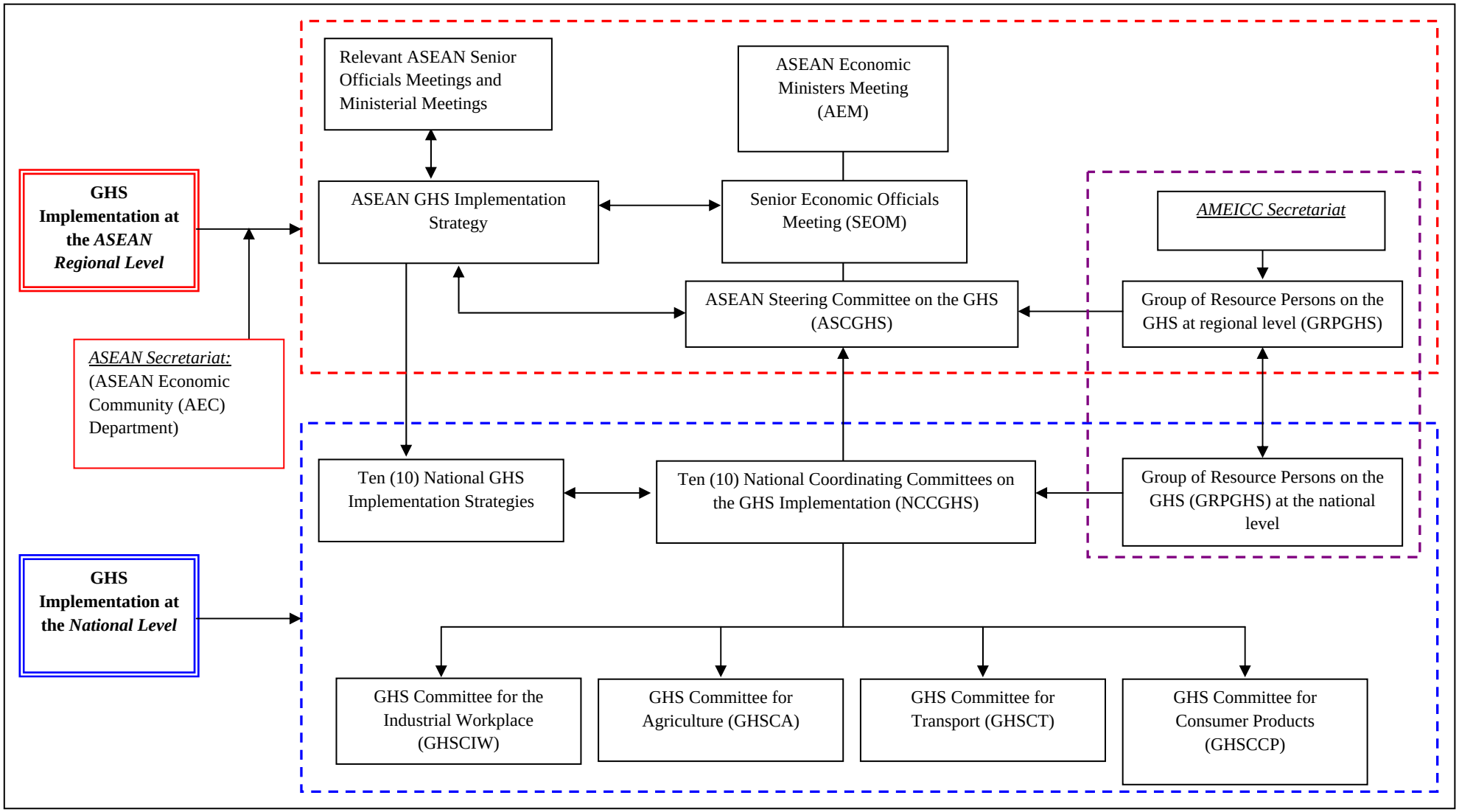

Figure 3: Proposed framework for GHS implementation in ASEAN

References

1. Silk J.C. (2003) Development of a globally harmonized system for hazard communication. *International Journal of Hygiene and Environmental Health* **206**: 447 – 452.
2. ASEAN. (2003) Declaration of ASEAN Concord II. (http://www.aseansec.org/15159.htm)
3. ASEAN. (2008) ASEAN Charter. Jakarta: ASEAN Secretariat.
4. ASEAN. (2009) ASEAN Secretariat Organisational Structure. (http://www.aseansec.org/13106-OrgStructure.pdf)
5. ASEAN. (2000) Memorandum of Understanding (MOU) on the establishment of the ASEAN Occupational Safety and Health Network (ASEAN-OSHNet)
6. ASEAN-OSHNET. (2008) (http://www.aseanoshnet.org/index2.php?menu=page&id=5)
7. ASEAN. (2004) ASEAN statistical year book 2004 (http://www.aseansec.org/syb2004.htm)
8. ASEAN. (1984) ASEAN ministerial understanding on ASEAN cooperation in agriculture and cooperatives. (http://www.aseansec.org/6178.htm)
9. ASEAN. (1998) ASEAN framework agreement on the facilitation of goods in transit. (http://www.aseansec.org/7377.htm)
10. ASEAN. (2002) Protocol 9 – Dangerous Goods. (http://www.aseansec.org/14239.htm)
11. Fukushima, T. (2005) Japanese GHS capacity building activities in ASEAN. Powerpoint presentation during the ASEAN GHS Regional Workshop on 18th October 2005.
12. European Council. (1967) European Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.
13. European Council. (2008) Regulation No 1272/2008 of the European Parliament and of the Council on classification, packaging and labelling of substances and mixtures.